IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	Godbole, et al.
Serial No:	Not Yet Assigned
Filed:	Herewith
For:	METHODS AND MATERIALS RELATING TO ALPHA-2-MACROGLOBULIN-LIKE POLYPEPTIDES AND POLYNUCLEOTIDES

STATEMENT REGARDING SEQUENCE LISTING UNDER 37 CFR §1.821(f)

BOX PATENT APPLICATION
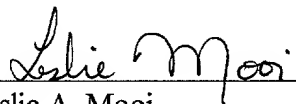Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

I hereby state that the content of the paper and computer readable copies of the Sequence Listing, submitted in accordance with 37 CFR §1.821(c) and (e), respectively, are the same.

Respectfully submitted,

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SEQUENCE LISTING

<110> Godbole, Shubhada D
     Boyle, Bryan J
     Mize, Nancy K
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     Goodrich, Ryle
     Arterburn, Matthew C
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     Liu, Chenghua
     Yeung, George
     Drmanac, Radoje T

<120> METHODS AND MATERIALS RELATING TO ALPHA-2-MACROGLOBULIN-LIKE POLYPEPTIDES AND POLYNUCLEOTIDES

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<151> 2000-08-23

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<151> 2000-03-31

<150> 09/684,711
<151> 2000-10-06

<150> 09/560,875
<151> 2000-04-27

<150> 09/496,914
<151> 2000-02-03

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gag caa ggc att gta gac ctg tcc ttc caa ctg gca cca gag gca atg     576
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Leu Gly Thr Tyr Thr Val Ala Val Ala Glu Gly Lys Thr Phe Gly Thr
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Phe Ser Val Glu Glu Tyr Val Leu Pro Lys Phe Lys Val Glu Val Val
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Glu Gln Leu Pro Asp Lys Cys Arg Asn Leu Ser Gly Gln Thr Asp Lys
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aca gga tgt ttc tca gca cct gtg gac atg gcc acc ttt gac ctc att        912
Thr Gly Cys Phe Ser Ala Pro Val Asp Met Ala Thr Phe Asp Leu Ile
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gga tat gcg tac agc cat caa atc aat att gtg gct act gtt gtg gag        960
Gly Tyr Ala Tyr Ser His Gln Ile Asn Ile Val Ala Thr Val Val Glu
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Glu Gly Thr Gly Val Glu Ala Asn Ala Thr Gln Asn Ile Tyr Ile Ser
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cca caa atg gga tca atg acc ttt gaa gac acc agc aat ttt tac cat       1056
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Phe Thr Leu Glu Thr Ser Gly Trp Asn Gly Thr Asp Val Ser Leu Glu
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gga aag ttt caa atg gaa gac tta gta tat aat ccg gaa caa gtg cca       1296
Gly Lys Phe Gln Met Glu Asp Leu Val Tyr Asn Pro Glu Gln Val Pro
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cgt tac tac caa aat gcc tac ctg cac ctg cga ccc ttc tac agc aca       1344
Arg Tyr Tyr Gln Asn Ala Tyr Leu His Leu Arg Pro Phe Tyr Ser Thr
            435             440             445

acc cgc agc ttc ctt ggc atc cac cgg cta aac ggc ccc ttg aaa tgt       1392
Thr Arg Ser Phe Leu Gly Ile His Arg Leu Asn Gly Pro Leu Lys Cys
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465             470             475             480

gca agc cct gac caa gag atc agc ttc tcc tac tat tta ata ggg aaa       1488
Ala Ser Pro Asp Gln Glu Ile Ser Phe Ser Tyr Tyr Leu Ile Gly Lys
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gcc cct gat cct tcc ctg gtg atc tat gcc att ttt ccc agt gga ggt      1632
Ala Pro Asp Pro Ser Leu Val Ile Tyr Ala Ile Phe Pro Ser Gly Gly
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Val Glu Leu Gln Leu Gln Ala Ala Pro Gly Ser Leu Cys Ala Leu Arg
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Ala Val Asp Glu Ser Val Leu Leu Leu Arg Pro Asp Arg Glu Leu Ser
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Asn Arg Ser Val Tyr Gly Met Phe Pro Phe Trp Tyr Gly His Tyr Pro
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625                 630                 635                 640

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cgt tcc att atc tgg agg ccc tcg ttc tct gaa ggc acg gac ctt ttc      2016
Arg Ser Ile Ile Trp Arg Pro Ser Phe Ser Glu Gly Thr Asp Leu Phe
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Ser Phe Phe Arg Asp Val Gly Leu Lys Ile Leu Ser Asn Ala Lys Ile
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Lys Lys Pro Val Asp Cys Ser His Arg Ser Pro Glu Tyr Ser Thr Ala
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Met Gly Gly Gly Gly His Pro Glu Ala Phe Glu Ser Ser Thr Pro Leu
705                 710                 715                 720

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His Gln Ala Glu Asp Ser Gln Val Arg Gln Tyr Phe Pro Glu Thr Trp
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Gly Lys Asp Val Asp Asp Pro  Met Val Ser Gln Gly  Leu Arg Cys
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Ser Pro Trp Ser Glu Pro Ala  Ala Val Asp Val Glu  Leu Thr Ala
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tat gca ttg ttg gcc cag ctt  acc aag ccc agc ctg  act caa aag       3699
Tyr Ala Leu Leu Ala Gln Leu  Thr Lys Pro Ser Leu  Thr Gln Lys
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Ala Leu Gln Ala Leu Ala Lys  Tyr Ala Thr Thr Ala  Tyr Met Pro
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Met Ala Ile Val Glu Val Lys  Met Leu Ser Gly Phe  Ser Pro Met
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Tyr Leu Pro Gly Ser Phe Lys  Leu Ser Gln Tyr Thr  Ile Val Trp
    1460            1465              1470

tcc atg aac aat gac agc ata  gtg gac tct gtg gca  cgg cac cca      4464
Ser Met Asn Asn Asp Ser Ile  Val Asp Ser Val Ala  Arg His Pro
    1475            1480              1485
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gaa cca  ccc cct ttc aag aca  gaa gca ttt att cct  tca ctt cct          4509
Glu Pro  Pro Pro Phe Lys Thr  Glu Ala Phe Ile Pro  Ser Leu Pro
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ggg agt  gtt aac aac tga                                                 4527
Gly Ser  Val Asn Asn
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Ala Glu Glu Leu Pro Asn Tyr Leu Val Thr Leu Pro Ala Arg Leu Asn
            20              25              30


Phe Pro Ser Val Gln Lys Val Cys Leu Asp Leu Ser Pro Gly Tyr Ser
        35              40              45


Asp Val Lys Phe Thr Val Thr Leu Glu Thr Lys Asp Lys Thr Gln Lys
    50              55              60


Leu Leu Glu Tyr Ser Gly Leu Lys Lys Arg His Leu His Cys Ile Ser
65              70              75              80


Phe Leu Val Pro Pro Pro Ala Gly Gly Thr Glu Glu Val Ala Thr Ile
            85              90              95


Arg Val Ser Gly Val Gly Asn Asn Ile Ser Phe Glu Glu Lys Lys Lys
            100             105             110


Val Leu Ile Gln Arg Gln Gly Asn Gly Thr Phe Val Gln Thr Asp Lys
        115             120             125


Pro Leu Tyr Thr Pro Gly Gln Gln Val Tyr Phe Arg Ile Val Thr Met
    130             135             140


Asp Ser Asn Phe Val Pro Val Asn Asp Lys Tyr Ser Met Val Glu Leu
145             150             155             160


Gln Asp Pro Asn Ser Asn Arg Ile Ala Gln Trp Leu Glu Val Val Pro
                165             170             175


Glu Gln Gly Ile Val Asp Leu Ser Phe Gln Leu Ala Pro Glu Ala Met
            180             185             190
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Leu Gly Thr Tyr Thr Val Ala Val Ala Glu Gly Lys Thr Phe Gly Thr
      195   200   205

Phe Ser Val Glu Glu Tyr Val Leu Pro Lys Phe Lys Val Glu Val Val
      210   215   220

Glu Pro Lys Glu Leu Ser Thr Val Gln Glu Ser Phe Leu Val Lys Ile
225   230   235   240

Cys Cys Arg Tyr Thr Tyr Gly Lys Pro Met Leu Gly Ala Val Gln Val
      245   250   255

Ser Val Cys Gln Lys Ala Asn Thr Tyr Trp Tyr Arg Glu Val Glu Arg
      260   265   270

Glu Gln Leu Pro Asp Lys Cys Arg Asn Leu Ser Gly Gln Thr Asp Lys
      275   280   285

Thr Gly Cys Phe Ser Ala Pro Val Asp Met Ala Thr Phe Asp Leu Ile
      290   295   300

Gly Tyr Ala Tyr Ser His Gln Ile Asn Ile Val Ala Thr Val Val Glu
305   310   315   320

Glu Gly Thr Gly Val Glu Ala Asn Ala Thr Gln Asn Ile Tyr Ile Ser
           325   330   335

Pro Gln Met Gly Ser Met Thr Phe Glu Asp Thr Ser Asn Phe Tyr His
           340   345   350

Pro Asn Phe Pro Phe Ser Gly Lys Ile Arg Val Arg Gly His Asp Asp
           355   360   365

Ser Phe Leu Lys Asn His Leu Val Phe Leu Val Ile Tyr Gly Thr Asn
      370   375   380

Gly Thr Phe Asn Gln Thr Leu Val Thr Asp Asn Asn Gly Leu Ala Pro
385   390   395   400

Phe Thr Leu Glu Thr Ser Gly Trp Asn Gly Thr Asp Val Ser Leu Glu
           405   410   415

Gly Lys Phe Gln Met Glu Asp Leu Val Tyr Asn Pro Glu Gln Val Pro
           420   425   430

Arg Tyr Tyr Gln Asn Ala Tyr Leu His Leu Arg Pro Phe Tyr Ser Thr

Thr Arg Ser Phe Leu Gly Ile His Arg Leu Asn Gly Pro Leu Lys Cys
    450   455   460

Gly Gln Pro Gln Glu Val Leu Val Asp Tyr Tyr Ile Asp Pro Ala Asp
465   470   475   480

Ala Ser Pro Asp Gln Glu Ile Ser Phe Ser Tyr Tyr Leu Ile Gly Lys
                485   490   495

Gly Ser Leu Val Met Glu Gly Gln Lys His Leu Asn Ser Lys Lys Lys
            500   505   510

Gly Leu Lys Ala Ser Phe Ser Leu Ser Leu Thr Phe Thr Ser Arg Leu
        515   520   525

Ala Pro Asp Pro Ser Leu Val Ile Tyr Ala Ile Phe Pro Ser Gly Gly
    530   535   540

Val Val Ala Asp Lys Ile Gln Phe Ser Val Gly Met Cys Phe Asp Asn
545   550   555   560

Gln Val Ser Leu Gly Phe Ser Pro Ser Gln Gln Leu Pro Gly Ala Glu
            565   570   575

Val Glu Leu Gln Leu Gln Ala Ala Pro Gly Ser Leu Cys Ala Leu Arg
            580   585   590

Ala Val Asp Glu Ser Val Leu Leu Leu Arg Pro Asp Arg Glu Leu Ser
        595   600   605

Asn Arg Ser Val Tyr Gly Met Phe Pro Phe Trp Tyr Gly His Tyr Pro
    610   615   620

Tyr Gln Val Ala Glu Tyr Asp Gln Cys Pro Val Ser Gly Pro Trp Asp
625   630   635   640

Phe Pro Gln Pro Leu Ile Asp Pro Met Pro Gln Gly His Ser Ser Gln
                645   650   655

Arg Ser Ile Ile Trp Arg Pro Ser Phe Ser Glu Gly Thr Asp Leu Phe
            660   665   670

Ser Phe Phe Arg Asp Val Gly Leu Lys Ile Leu Ser Asn Ala Lys Ile
        675   680   685

Lys Lys Pro Val Asp Cys Ser His Arg Ser Pro Glu Tyr Ser Thr Ala
    690   695   700

Met Gly Gly Gly Gly His Pro Glu Ala Phe Glu Ser Ser Thr Pro Leu
705   710   715   720

His Gln Ala Glu Asp Ser Gln Val Arg Gln Tyr Phe Pro Glu Thr Trp
            725   730   735

Leu Trp Asp Leu Phe Pro Ile Gly Asn Ser Gly Lys Glu Ala Val His
            740   745   750

Val Thr Val Pro Asp Ala Ile Thr Glu Trp Lys Ala Met Ser Phe Cys
        755   760   765

Thr Ser Gln Ser Arg Gly Phe Gly Leu Ser Pro Thr Val Gly Leu Thr
    770   775   780

Ala Phe Lys Pro Phe Phe Val Asp Leu Thr Leu Pro Tyr Ser Val Val
785   790   795   800

Arg Gly Glu Ser Phe Arg Leu Thr Ala Thr Ile Phe Asn Tyr Leu Lys
            805   810   815

Asp Cys Ile Arg Val Gln Thr Asp Leu Ala Lys Ser His Glu Tyr Gln
            820   825   830

Leu Glu Ser Trp Ala Asp Ser Gln Thr Ser Ser Cys Leu Cys Ala Asp
    835   840   845

Asp Ala Lys Thr His His Trp Asn Ile Thr Ala Val Lys Leu Gly His
    850   855   860

Ile Asn Phe Thr Ile Ser Thr Lys Ile Leu Asp Ser Asn Glu Pro Cys
865   870   875   880

Gly Gly Gln Lys Gly Phe Val Pro Gln Lys Gly Arg Ser Asp Thr Leu
            885   890   895

Ile Lys Pro Val Leu Val Lys Pro Glu Gly Val Leu Val Glu Lys Thr
            900   905   910

His Ser Ser Leu Leu Cys Pro Lys Gly Lys Val Ala Ser Glu Ser Val
    915   920   925

Ser Leu Glu Leu Pro Val Asp Ile Val Pro Asp Ser Thr Lys Ala Tyr
    930   935   940

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Val Thr Val Leu Gly Lys Gln Leu Glu Ile Leu Asp Ser Glu Arg Lys
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Arg Arg Met Glu Ala Ala Lys Val Trp Arg Asp Ile Met Gly Thr Ala
         965               970               975

Leu Gln Asn Leu Asp Gly Leu Val Gln Met Pro Ser Gly Cys Gly Glu
             980               985               990

Gln Asn Met Val Leu Phe Ala Pro  Ile Ile Tyr Val Leu  Gln Tyr Leu
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Glu Lys  Ala Gly Leu Leu Thr  Glu Glu Ile Arg Ser  Arg Ala Val
    1010              1015              1020

Gly Phe  Leu Glu Ile Gly Tyr  Gln Lys Glu Leu Met  Tyr Lys His
    1025              1030              1035

Ser Asn  Gly Ser Tyr Ser Ala  Phe Gly Glu Arg Asp  Gly Asn Gly
    1040              1045              1050

Asn Thr  Trp Leu Thr Ala Phe  Val Thr Lys Cys Phe  Gly Gln Ala
    1055              1060              1065

Gln Lys  Phe Ile Phe Ile Asp  Pro Lys Asn Ile Gln  Asp Ala Leu
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Lys Trp  Met Ala Gly Asn Gln  Leu Pro Ser Gly Cys  Tyr Ala Asn
    1085              1090              1095

Val Gly  Asn Leu Leu His Thr  Ala Met Lys Gly Gly  Val Asp Asp
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Glu Val  Ser Leu Thr Ala Tyr  Val Thr Ala Ala Leu  Leu Glu Met
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Gly Lys  Asp Val Asp Asp Pro  Met Val Ser Gln Gly  Leu Arg Cys
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Leu Lys  Asn Ser Ala Thr Ser  Thr Thr Asn Leu Tyr  Thr Gln Ala
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Leu Leu  Ala Tyr Ile Phe Ser  Leu Ala Gly Glu Met  Asp Ile Arg
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Asn Ile  Leu Leu Lys Gln Leu  Asp Gln Gln Ala Ile  Ile Ser Gly
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Ser Pro  Trp Ser Glu Pro Ala  Ala Val Asp Val Glu  Leu Thr Ala
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Tyr Ala  Leu Leu Ala Gln Leu  Thr Lys Pro Ser Leu  Thr Gln Lys
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Glu Ile  Ala Lys Ala Thr Ser  Ile Val Ala Trp Leu  Ala Lys Gln
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His Asn  Ala Tyr Gly Gly Phe  Ser Ser Thr Gln Asp  Thr Val Val
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Ala Leu  Gln Ala Leu Ala Lys  Tyr Ala Thr Thr Ala  Tyr Met Pro
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Ser Glu  Glu Ile Asn Leu Val  Val Lys Ser Thr Glu  Asn Phe Gln
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Arg Thr  Phe Asn Ile Gln Ser  Val Asn Arg Leu Val  Phe Gln Gln
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Asp Thr  Leu Pro Asn Val Pro  Gly Met Tyr Thr Leu  Glu Ala Ser
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Gly Gln  Gly Cys Val Tyr Val  Gln Thr Val Leu Arg  Tyr Asn Ile
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Leu Pro  Pro Thr Asn Met Lys  Thr Phe Ser Leu Ser  Val Glu Ile
    1340             1345             1350

Gly Lys  Ala Arg Cys Glu Gln  Pro Thr Ser Pro Arg  Ser Leu Thr
    1355             1360             1365

Leu Thr  Ile His Thr Ser Tyr  Val Gly Ser Arg Ser  Ser Ser Asn
    1370             1375             1380

Met Ala  Ile Val Glu Val Lys  Met Leu Ser Gly Phe  Ser Pro Met
    1385             1390             1395

Glu Gly  Thr Asn Gln Leu Leu  Leu Gln Gln Pro Leu  Val Lys Lys
    1400             1405             1410

Val Glu  Phe Gly Thr Asp Thr  Leu Asn Ile Tyr Leu  Asp Glu Leu
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Ile Lys Asn Thr Gln Thr Tyr Thr Phe Thr Ile Ser Gln Ser Val
    1430   1435   1440

Leu Val Thr Asn Leu Lys Pro Ala Thr Ile Lys Val Tyr Asp Tyr
    1445   1450   1455

Tyr Leu Pro Gly Ser Phe Lys Leu Ser Gln Tyr Thr Ile Val Trp
    1460   1465   1470

Ser Met Asn Asn Asp Ser Ile Val Asp Ser Val Ala Arg His Pro
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Glu Pro Pro Pro Phe Lys Thr Glu Ala Phe Ile Pro Ser Leu Pro
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Gly Ser Val Asn Asn
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Ser Thr Gln Asp Thr Val Val Ala Leu Gln Ala Leu Ala Lys Tyr
            20   25   30

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Arg Gly Glu Ser Phe Arg Leu Thr Ala Thr Ile Phe Asn Tyr
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Ala Pro Ile Ile Tyr Val Leu Gln Tyr Leu Glu Lys Ala Gly Leu Leu
            20   25   30

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Tyr Phe Arg Ile Val Thr Met Asp Ser Asn Phe Val Pro
            20   25

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Phe Thr Ile Ser Gln Ser Val Leu Val Thr Asn Leu Lys Pro Ala Thr
1   5   10   15

Ile Lys Val Tyr Asp Tyr Tyr Leu Pro Gly Ser Phe Lys Leu Ser Gln
            20   25   30

Tyr

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Met Glu Gly Thr Asn Gln Leu Leu
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Arg Leu Thr Ala Thr Ile Phe Asn Tyr Leu Lys
            20   25

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Gln Ser Arg Gly Phe
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1   5   10

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1   5   10   15

Asn Leu Leu His Thr Ala Met Lys Gly Gly Val
            20   25

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1   5   10

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Asn Thr Trp Leu Thr Ala Phe Val Thr Lys Cys Phe
1   5   10

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Phe Leu Val Lys Ile Cys Cys Arg Tyr Thr Tyr Gly Lys Pro Met Leu
1   5   10   15

Gly

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1   5   10   15

Ala

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Glu Asn Lys Lys Val Leu Ile Gln Arg Gln Gly Asn Gly Thr Phe Val
            20   25   30

Gln Thr Asp Lys Pro Leu Tyr Thr Pro Gly Gln Gln Val Tyr Phe Arg
        35   40   45

Ile Val Thr Met Asp Ser Asn Phe Val Pro Val Asn Asp Lys Tyr Ser
　　50　　　　　　　55　　　　　　　60

Met Val Glu Leu Gln Asp Pro Asn Ser Asn Arg Ile Ala Gln Trp Leu
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Glu Val Val Pro Glu Gln Gly Ile Val Asp Leu Ser Phe Gln Leu Ala
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Pro Glu Ala Met Leu Gly Thr Tyr Thr Val Ala Val Ala Glu Gly Lys
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Thr Phe Gly Thr Phe Ser Val Glu Glu Tyr Val Leu Pro Lys Phe Lys
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Val Glu Val Val Glu Pro Lys Glu Leu Ser Thr Val Gln Glu Ser Phe
　　130　　　　　　　135　　　　　　　140

Leu Val Lys Ile Cys Cys Arg Tyr Thr Tyr Gly Lys Pro Met Leu Gly
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Asn Gln Leu Pro Ser Gly Cys Tyr Ala Asn Val Gly Asn Leu Leu His
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Thr Ala Met Lys Gly Gly Val Asp Asp Glu Val Ser Leu Thr Ala Tyr
　　130　　　　　　　135　　　　　　　140

Val Thr Ala Ala Leu Leu Glu Met Gly Lys Asp Val Asp Asp Pro Met
145　　　　　　　150　　　　　　　155　　　　　　　160

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Val Ser Gln Gly Leu Arg Cys Leu Lys Asn Ser Ala Thr Ser Thr Thr
            165   170   175

Asn Leu Tyr Thr Gln Ala Leu Leu Ala Tyr Ile Phe Ser Leu Ala Gly
            180   185   190

Glu Met Asp Ile Arg Asn Ile Leu Leu Lys Gln Leu Asp Gln Gln Ala
            195   200   205

Ile Ile Ser Gly Glu Ser Ile Tyr Trp Ser Gln Lys Pro Thr Pro Ser
    210   215   220

Ser Asn Ala Ser Pro Trp Ser Glu Pro Ala Ala Val Asp Val Glu Leu
225   230   235   240

Thr Ala Tyr Ala Leu Leu Ala Gln Leu Thr Lys Pro Ser Leu Thr Gln
            245   250   255

Lys Glu Ile Ala Lys Ala Thr Ser Ile Val Ala Trp Leu Ala Lys Gln
            260   265   270

His Asn Ala Tyr Gly Gly Phe Ser Ser Thr Gln Asp Thr Val Val Ala
            275   280   285

Leu Gln Ala Leu Ala Lys Tyr Ala Thr Thr Ala Tyr
    290   295   300

<210>   22
<211>   137
<212>   PRT
<213>   Homo sapiens

<400>   22

Asn Met Lys Thr Phe Ser Leu Ser Val Glu Ile Gly Lys Ala Arg Cys
1   5   10   15

Glu Gln Pro Thr Ser Pro Arg Ser Leu Thr Leu Thr Ile His Thr Ser
            20   25   30

Tyr Val Gly Ser Arg Ser Ser Ser Asn Met Ala Ile Val Glu Val Lys
            35   40   45

Met Leu Ser Gly Phe Ser Pro Met Glu Gly Thr Asn Gln Leu Leu Leu
    50   55   60

Gln Gln Pro Leu Val Lys Lys Val Glu Phe Gly Thr Asp Thr Leu Asn
65   70   75   80

Ile Tyr Leu Asp Glu Leu Ile Lys Asn Thr Gln Thr Tyr Thr Phe Thr
            85   90   95

Ile Ser Gln Ser Val Leu Val Thr Asn Leu Lys Pro Ala Thr Ile Lys
            100   105   110

Val Tyr Asp Tyr Tyr Leu Pro Gly Ser Phe Lys Leu Ser Gln Tyr Thr
            115   120   125

Ile Val Trp Ser Met Asn Asn Asp Ser
    130   135

<210>   23

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<213> Homo sapiens

<400> 23

Leu Leu Leu Val Leu Leu Pro Thr Asp Ala Ser Val Ser Gly Lys Pro
1   5   10   15

Gln Tyr Met Val Leu Val Pro Ser Leu Leu His Thr Glu Thr Thr Glu
            20   25   30

Lys Gly Cys Val Leu Leu Ser Tyr Leu Asn Glu Thr Val Thr Val Ser
            35   40   45

Ala Ser Leu Glu Ser Val Arg Gly Asn Arg Ser Leu Phe Thr Asp Leu
        50   55   60

Glu Ala Glu Asn Asp Val Leu His Cys Val Ala Phe Ala Val Pro Lys
65   70   75   80

Ser Ser Ser Asn Glu Glu Val Met Phe Leu Thr Val Gln Val Lys Gly
                85   90   95

Pro Thr Gln Glu Phe Lys Lys Arg Thr Thr Val Met Val Lys Asn Glu
            100   105   110

Asp Ser Leu Val Phe Val Gln Thr Asp Lys Ser Ile Tyr Lys Pro Gly
            115   120   125

Gln Thr Val Lys Phe Arg Val Val Ser Met Asp Glu Asn Phe His Pro
    130   135   140

Leu Asn Glu Leu Ile Pro Leu Val Tyr Ile Gln Asp Pro Lys Gly Asn
145   150   155   160

Arg Ile Ala Gln Trp Gln Ser Phe Gln Leu Glu Gly Gly Leu Lys Gln
                165   170   175

Phe Ser Phe Pro Leu Ser Ser Glu Pro Phe Gln Gly Ser Tyr Lys Val
            180   185   190

Val Val Gln Lys Lys Ser Gly Gly Arg Thr Glu His Pro Phe Thr Val
    195   200   205

Glu Glu Phe Val Leu Pro Lys Phe Glu Val Gln Val Thr Val Pro Lys
    210   215   220

Ile Ile Thr Ile Leu Glu Glu Glu Met Asn Val Ser Val Cys Gly Leu
225   230   235   240

Tyr Thr Tyr Gly Lys Pro Val Pro Gly His Val Thr Val Ser Ile Cys
            245   250   255

Arg Lys Tyr Ser Asp Ala Ser Asp Cys His Gly Glu Asp Ser Gln Ala
            260   265   270

Phe Cys Glu Lys Phe Ser Gly Gln Leu Asn Ser His Gly Cys Phe Tyr
            275   280   285

Gln Gln Val Lys Thr Lys Val Phe Gln Leu Lys Arg Lys Glu Tyr Glu
    290   295   300

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Met Lys Leu His Thr Glu Ala Gln Ile Gln Glu Glu Gly Thr Val Val
305             310         315             320

Glu Leu Thr Gly Arg Gln Ser Ser Glu Ile Thr Arg Thr Ile Thr Lys
            325         330             335

Leu Ser Phe Val Lys Val Asp Ser His Phe Arg Gln Gly Ile Pro Phe
            340         345             350

Phe Gly Gln Val Arg Leu Val Asp Gly Lys Gly Val Pro Ile Pro Asn
        355             360         365

Lys Val Ile Phe Ile Arg Gly Asn Glu Ala Asn Tyr Tyr Ser Asn Ala
    370             375         380

Thr Thr Asp Glu His Gly Leu Val Gln Phe Ser Ile Asn Thr Thr Asn
385             390         395             400

Val Met Gly Thr Ser Leu Thr Val Arg Val Asn Tyr Lys Asp Arg Ser
            405             410         415

Pro Cys Tyr Gly Tyr Gln Trp Val Ser Glu Glu His Glu Glu Ala His
        420         425             430

His Thr Ala Tyr Leu Val Phe Ser Pro Ser Lys Ser Phe Val His Leu
    435             440             445

Glu Pro Met Ser His Glu Leu Pro Cys Gly His Thr Gln Thr Val Gln
    450             455         460

Ala His Tyr Ile Leu Asn Gly Gly Thr Leu Leu Gly Leu Lys Lys Leu
465             470             475             480

Ser Phe Tyr Tyr Leu Ile Met Ala Lys Gly Gly Ile Val Arg Thr Gly
            485             490             495

Thr His Gly Leu Leu Val Lys Gln Glu Asp Met Lys Gly His Phe Ser
            500         505             510

Ile Ser Ile Pro Val Lys Ser Asp Ile Ala Pro Val Ala Arg Leu Leu
        515             520             525

Ile Tyr Ala Val Leu Pro Thr Gly Asp Val Ile Gly Asp Ser Ala Lys
    530             535             540

Tyr Asp Val Glu Asn Cys Leu Ala Asn Lys Val Asp Leu Ser Phe Ser
545             550             555             560

Pro Ser Gln Ser Leu Pro Ala Ser His Ala His Leu Arg Val Thr Ala
            565             570             575

Ala Pro Gln Ser Val Cys Ala Leu Arg Ala Val Asp Gln Ser Val Leu
            580             585             590

Leu Met Lys Pro Asp Ala Glu Leu Ser Ala Ser Ser Val Tyr Asn Leu
        595             600             605

Leu Pro Glu Lys Asp Leu Thr Gly Phe Pro Gly Pro Leu Asn Asp Gln
    610             615             620

Asp Asp Glu Asp Cys Ile Asn Arg His Asn Val Tyr Ile Asn Gly Ile
625             630             635             640
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Thr Tyr Thr Pro Val Ser Ser Thr Asn Glu Lys Asp Met Tyr Ser Phe
            645   650   655

Leu Glu Asp Met Gly Leu Lys Ala Phe Thr Asn Ser Lys Ile Arg Lys
            660   665   670

Pro Lys Met Cys Pro Gln Leu Gln Gln Tyr Glu Met His Gly Pro Glu
            675   680   685

Gly Leu Arg Val Gly Phe Tyr Glu Ser Asp Val Met Gly Arg Gly His
    690   695   700

Ala Arg Leu Val His Val Glu Glu Pro His Thr Glu Thr Val Arg Lys
705   710   715   720

Tyr Phe Pro Glu Thr Trp Ile Trp Asp Leu Val Val Val Asn Ser Ala
                725   730   735

Gly Val Ala Glu Val Gly Val Thr Val Pro Asp Thr Ile Thr Glu Trp
            740   745   750

Lys Ala Gly Ala Phe Cys Leu Ser Glu Asp Ala Gly Leu Gly Ile Ser
            755   760   765

Ser Thr Ala Ser Leu Arg Ala Phe Gln Pro Phe Phe Val Glu Leu Thr
    770   775   780

Met Pro Tyr Ser Val Ile Arg Gly Glu Ala Phe Thr Leu Lys Ala Thr
785   790   795   800

Val Leu Asn Tyr Leu Pro Lys Cys Ile Arg Val Ser Val Gln Leu Glu
                805   810   815

Ala Ser Pro Ala Phe Leu Ala Val Pro Val Glu Lys Glu Gln Ala Pro
            820   825   830

His Cys Ile Cys Ala Asn Gly Arg Gln Thr Val Ser Trp Ala Val Thr
            835   840   845

Pro Lys Ser Leu Gly Asn Val Asn Phe Thr Val Ser Ala Glu Ala Leu
    850   855   860

Glu Ser Gln Glu Leu Cys Gly Thr Glu Val Pro Ser Val Pro Glu His
865   870   875   880

Gly Arg Lys Asp Thr Val Ile Lys Pro Leu Leu Val Glu Pro Glu Gly
            885   890   895

Leu Glu Lys Glu Thr Thr Phe Asn Ser Leu Leu Cys Pro Ser Gly Gly
            900   905   910

Glu Val Ser Glu Glu Leu Ser Leu Lys Leu Pro Pro Asn Val Val Glu
    915   920   925

Glu Ser Ala Arg Ala Ser Val Ser Val Leu Gly Asp Ile Leu Gly Ser
    930   935   940

Ala Met Gln Asn Thr Gln Asn Leu Leu Gln Met Pro Tyr Gly Cys Gly
945   950   955   960

Glu Gln Asn Met Val Leu Phe Ala Pro Asn Ile Tyr Val Leu Asp Tyr
            965   970   975

Leu Asn Glu Thr Gln Gln Leu Thr Pro Glu Val Lys Ser Lys Ala Ile
   980   985   990

Gly Tyr Leu Asn Thr Gly Tyr Gln Arg Gln Leu Asn Tyr Lys His Tyr
  995   1000   1005

Asp Gly Ser Tyr Ser Thr Phe Gly Glu Arg Tyr Gly Arg Asn Gln
 1010   1015   1020

Gly Asn Thr Trp Leu Thr Ala Phe Val Leu Lys Thr Phe Ala Gln
 1025   1030   1035

Ala Arg Ala Tyr Ile Phe Ile Asp Glu Ala His Ile Thr Gln Ala
 1040   1045   1050

Leu Ile Trp Leu Ser Gln Arg Gln Lys Asp Asn Gly Cys Phe Arg
 1055   1060   1065

Ser Ser Gly Ser Leu Leu Asn Asn Ala Ile Lys Gly Gly Val Glu
 1070   1075   1080

Asp Glu Val Thr Leu Ser Ala Tyr Ile Thr Ile Ala Leu Leu Glu
 1085   1090   1095

Ile Pro Leu Thr Val Thr His Pro Val Val Arg Asn Ala Leu Phe
 1100   1105   1110

Cys Leu Glu Ser Ala Trp Lys Thr Ala Gln Glu Gly Asp His Gly
 1115   1120   1125

Ser His Val Tyr Thr Lys Ala Leu Leu Ala Tyr Ala Phe Ala Leu
 1130   1135   1140

Ala Gly Asn Gln Asp Lys Arg Lys Glu Val Leu Lys Ser Leu Asn
 1145   1150   1155

Glu Glu Ala Val Lys Lys Asp Asn Ser Val His Trp Glu Arg Pro
 1160   1165   1170

Gln Lys Pro Lys Ala Pro Val Gly His Phe Tyr Glu Pro Gln Ala
 1175   1180   1185

Pro Ser Ala Glu Val Glu Met Thr Ser Tyr Val Leu Leu Ala Tyr
 1190   1195   1200

Leu Thr Ala Gln Pro Ala Pro Thr Ser Glu Asp Leu Thr Ser Ala
 1205   1210   1215

Thr Asn Ile Val Lys Trp Ile Thr Lys Gln Gln Asn Ala Gln Gly
 1220   1225   1230

Gly Phe Ser Ser Thr Gln Asp Thr Val Val Ala Leu His Ala Leu
 1235   1240   1245

Ser Lys Tyr Gly Ala Ala Thr Phe Thr Arg Thr Gly Lys Ala Ala
 1250   1255   1260

Gln Val Thr Ile Gln Ser Ser Gly Thr Phe Ser Ser Lys Phe Gln
 1265   1270   1275

Val Asp Asn Asn Asn Arg Leu Leu Leu Gln Gln Val Ser Leu Pro
 1280   1285   1290

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Glu Leu  Pro Gly Glu Tyr Ser  Met Lys Val Thr Gly  Glu Gly Cys
    1295                 1300              1305

Val Tyr  Leu Gln Thr Ser Leu  Lys Tyr Asn Ile Leu  Pro Glu Lys
    1310                 1315              1320

Glu Glu  Phe Pro Phe Ala Leu  Gly Val Gln Thr Leu  Pro Gln Thr
    1325                 1330              1335

Cys Asp  Glu Pro Lys Ala His  Thr Ser Phe Gln Ile  Ser Leu Ser
    1340                 1345              1350

Val Ser  Tyr Thr Gly Ser Arg  Ser Ala Ser Asn Met  Ala Ile Val
    1355                 1360              1365

Asp Val  Lys Met Val Ser Gly  Phe Ile Pro Leu Lys  Pro Thr Val
    1370                 1375              1380

Lys Met  Leu Glu Arg Ser Asn  His Val Ser Arg Thr  Glu Val Ser
    1385                 1390              1395

Ser Asn  His Val Leu Ile Tyr  Leu Asp Lys Val Ser  Asn Gln Thr
    1400                 1405              1410

Leu Ser  Leu Phe Phe Thr Val  Leu Gln Asp Val Pro  Val Arg Asp
    1415                 1420              1425

Leu Lys  Pro Ala Ile Val Lys  Val Tyr Asp Tyr Tyr  Glu Thr Asp
    1430                 1435              1440

Glu Phe  Ala Ile Ala Glu Tyr
    1445                 1450
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<213> Homo sapiens

<400> 24

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Leu Leu Leu Leu Val Leu Val Pro Thr Asp Ala Ser Val Ser Gly Lys
1               5               10              15

Pro Gln Tyr Met Val Leu Val Pro Ser Leu Leu His Thr Glu Thr Thr
            20              25              30

Glu Lys Gly Cys Val Leu Leu Ser Tyr Leu Asn Glu Thr Val Thr Val
        35              40              45

Ser Ala Ser Leu Glu Ser Val Arg Gly Asn Arg Ser Leu Phe Thr Asp
    50              55              60

Leu Glu Ala Glu Asn Asp Val Leu His Cys Val Ala Phe Ala Val Pro
65              70              75              80

Lys Ser Ser Ser Asn Glu Glu Val Met Phe Leu Thr Val Gln Val Lys
            85              90              95

Gly Pro Thr Gln Glu Phe Lys Lys Arg Thr Thr Val Met Val Lys Asn
            100             105             110

Glu Asp Ser Leu Val Phe Val Gln Thr Asp Lys Ser Ile Tyr Lys Pro
        115             120             125
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Gly Gln Thr Val Lys Phe Arg Val Val Ser Met Asp Glu Asn Phe His
    130   135   140

Pro Leu Asn Glu Leu Ile Pro Leu Val Tyr Ile Gln Asp Pro Lys Gly
145   150   155   160

Asn Arg Ile Ala Gln Trp Gln Ser Phe Gln Leu Glu Gly Gly Leu Lys
          165   170   175

Gln Phe Ser Phe Pro Leu Ser Ser Glu Pro Phe Gln Gly Ser Tyr Lys
          180   185   190

Val Val Val Gln Lys Lys Ser Gly Gly Arg Thr Glu His Pro Phe Thr
        195   200   205

Val Glu Glu Phe Val Leu Pro Lys Phe Glu Val Gln Val Thr Val Pro
    210   215   220

Lys Ile Ile Thr Ile Leu Glu Glu Glu Met Asn Val Ser Val Cys Gly
225   230   235   240

Leu Tyr Thr Tyr Gly Lys Pro Val Pro Gly His Val Thr Val Ser Ile
          245   250   255

Cys Arg Lys Tyr Ser Asp Ala Ser Asp Cys His Gly Glu Asp Ser Gln
        260   265   270

Ala Phe Cys Glu Lys Phe Ser Gly Gln Leu Asn Ser His Gly Cys Phe
        275   280   285

Tyr Gln Gln Val Lys Thr Lys Val Phe Gln Leu Lys Arg Lys Glu Tyr
    290   295   300

Glu Met Lys Leu His Thr Glu Ala Gln Ile Gln Glu Glu Gly Thr Val
305   310   315   320

Val Glu Leu Thr Gly Arg Gln Ser Ser Glu Ile Thr Arg Thr Ile Thr
          325   330   335

Lys Leu Ser Phe Val Lys Val Asp Ser His Phe Arg Gln Gly Ile Pro
        340   345   350

Phe Phe Gly Gln Val Arg Leu Val Asp Gly Lys Gly Val Pro Ile Pro
        355   360   365

Asn Lys Val Ile Phe Ile Arg Gly Asn Glu Ala Asn Tyr Tyr Ser Asn
    370   375   380

Ala Thr Thr Asp Glu His Gly Leu Val Gln Phe Ser Ile Asn Thr Thr
385   390   395   400

Asn Val Met Gly Thr Ser Leu Thr Val Arg Val Asn Tyr Lys Asp Arg
        405   410   415

Ser Pro Cys Tyr Gly Tyr Gln Trp Val Ser Glu Glu His Glu Glu Ala
        420   425   430

His His Thr Ala Tyr Leu Val Phe Ser Pro Ser Lys Ser Phe Val His
        435   440   445

Leu Glu Pro Met Ser His Glu Leu Pro Cys Gly His Thr Gln Thr Val
    450   455   460

Gln Ala His Tyr Ile Leu Asn Gly Gly Thr Leu Leu Gly Leu Lys Lys
465   470   475   480

Leu Ser Phe Tyr Tyr Leu Ile Met Ala Lys Gly Gly Ile Val Arg Thr
                485   490   495

Gly Thr His Gly Leu Leu Val Lys Gln Glu Asp Met Lys Gly His Phe
            500   505   510

Ser Ile Ser Ile Pro Val Lys Ser Asp Ile Ala Pro Val Ala Arg Leu
            515   520   525

Leu Ile Tyr Ala Val Leu Pro Thr Gly Asp Val Ile Gly Asp Ser Ala
        530   535   540

Lys Tyr Asp Val Glu Asn Cys Leu Ala Asn Lys Val Asp Leu Ser Phe
545   550   555   560

Ser Pro Ser Gln Ser Leu Pro Ala Ser His Ala His Leu Arg Val Thr
                565   570   575

Ala Ala Pro Gln Ser Val Cys Ala Leu Arg Ala Val Asp Gln Ser Val
            580   585   590

Leu Leu Met Lys Pro Asp Ala Glu Leu Ser Ala Ser Ser Val Tyr Asn
        595   600   605

Leu Leu Pro Glu Lys Asp Leu Thr Gly Phe Pro Gly Pro Leu Asn Asp
        610   615   620

Gln Asp Asp Glu Asp Cys Ile Asn Arg His Asn Val Tyr Ile Asn Gly
625   630   635   640

Ile Thr Tyr Thr Pro Val Ser Ser Thr Asn Glu Lys Asp Met Tyr Ser
                645   650   655

Phe Leu Glu Asp Met Gly Leu Lys Ala Phe Thr Asn Ser Lys Ile Arg
            660   665   670

Lys Pro Lys Met Cys Pro Gln Leu Gln Gln Tyr Glu Met His Gly Pro
        675   680   685

Glu Gly Leu Arg Val Gly Phe Tyr Glu Ser Asp Val Met Gly Arg Gly
        690   695   700

His Ala Arg Leu Val His Val Glu Glu Pro His Thr Glu Thr Val Arg
705   710   715   720

Lys Tyr Phe Ala Glu Thr Trp Ile Trp Asp Leu Val Val Val Asn Ser
                725   730   735

Ala Gly Val Ala Glu Val Gly Val Thr Val Pro Asp Thr Ile Thr Glu
            740   745   750

Trp Lys Ala Gly Ala Phe Cys Leu Ser Glu Asp Ala Gly Leu Gly Ile
        755   760   765

Ser Ser Thr Ala Ser Leu Arg Ala Phe Gln Pro Phe Phe Val Glu Leu
        770   775   780

Thr Met Pro Tyr Ser Val Ile Arg Gly Glu Ala Phe Thr Leu Lys Ala
785   790   795   800

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Thr Val Leu Asn Tyr Leu Pro Lys Cys Ile Arg Val Ser Val Gln Leu
         805   810   815

Glu Ala Ser Pro Ala Phe Leu Ala Val Pro Val Glu Lys Glu Gln Ala
         820   825   830

Pro His Cys Ile Cys Ala Asn Gly Arg Gln Thr Val Ser Trp Ala Val
         835   840   845

Thr Pro Lys Ser Leu Gly Asn Val Asn Phe Thr Val Ser Ala Glu Ala
  850   855   860

Leu Glu Ser Gln Glu Leu Cys Gly Thr Glu Val Pro Ser Val Pro Glu
865   870   875   880

His Gly Arg Lys Asp Thr Val Ile Lys Pro Leu Leu Val Glu Pro Glu
         885   890   895

Gly Leu Glu Lys Glu Thr Thr Phe Asn Ser Leu Leu Cys Pro Ser Gly
         900   905   910

Gly Glu Val Ser Glu Glu Leu Ser Leu Lys Leu Pro Pro Asn Val Val
         915   920   925

Glu Glu Ser Ala Arg Ala Ser Val Ser Val Leu Gly Asp Ile Leu Gly
  930   935   940

Ser Ala Met Gln Asn Thr Gln Asn Leu Leu Gln Met Pro Tyr Gly Cys
945   950   955   960

Gly Glu Gln Asn Met Val Leu Phe Ala Pro Asn Ile Tyr Val Leu Asp
         965   970   975

Tyr Leu Asn Glu Thr Gln Gln Leu Thr Pro Glu Ile Lys Ser Lys Ala
         980   985   990

Ile Gly Tyr Leu Asn Thr Gly Tyr Gln Arg Gln Leu Asn Tyr Lys His
      995   1000   1005

Tyr Asp Gly Ser Tyr Ser Thr Phe Gly Glu Arg Tyr Gly Arg Asn
  1010   1015   1020

Gln Gly Asn Thr Trp Leu Thr Ala Phe Val Leu Lys Thr Phe Ala
  1025   1030   1035

Gln Ala Arg Ala Tyr Ile Phe Ile Asp Glu Ala His Ile Thr Gln
  1040   1045   1050

Ala Leu Ile Trp Leu Ser Gln Arg Gln Lys Asp Asn Gly Cys Phe
  1055   1060   1065

Arg Ser Ser Gly Ser Leu Leu Asn Asn Ala Ile Lys Gly Gly Val
  1070   1075   1080

Glu Asp Glu Val Thr Leu Ser Ala Tyr Ile Thr Ile Ala Leu Leu
  1085   1090   1095

Glu Ile Leu Leu Thr Val Thr His Pro Val Val Arg Asn Ala Leu
  1100   1105   1110

Phe Cys Leu Glu Ser Ala Trp Lys Thr Ala Gln Glu Gly Asp His
  1115   1120   1125

Gly Ser His Val Tyr Thr Lys Ala Leu Leu Ala Tyr Ala Phe Ala
    1130   1135   1140

Leu Ala Gly Asn Gln Asp Lys Arg Lys Glu Val Leu Lys Ser Leu
    1145   1150   1155

Asn Glu Glu Ala Val Lys Lys Asp Asn Ser Val His Trp Glu Arg
    1160   1165   1170

Pro Gln Lys Pro Lys Ala Pro Val Gly His Phe Tyr Glu Pro Gln
    1175   1180   1185

Ala Pro Ser Ala Glu Val Glu Met Thr Ser Tyr Val Leu Leu Ala
    1190   1195   1200

Tyr Leu Thr Ala Gln Pro Ala Pro Thr Ser Glu Asp Leu Thr Ser
    1205   1210   1215

Ala Thr Asn Ile Val Lys Trp Ile Thr Lys Gln Gln Asn Ala Gln
    1220   1225   1230

Gly Gly Phe Ser Ser Thr Gln His Thr Val Val Ala Leu His Ala
    1235   1240   1245

Leu Ser Lys Tyr Gly Ala Ala Thr Phe Thr Arg Thr Gly Lys Ala
    1250   1255   1260

Ala Gln Val Thr Ile Gln Ser Ser Gly Thr Phe Ser Ser Lys Phe
    1265   1270   1275

Gln Val Asp Asn Asn Asn Arg Leu Leu Leu Gln Gln Val Ser Leu
    1280   1285   1290

Pro Glu Leu Pro Gly Glu Tyr Ser Met Lys Val Thr Gly Glu Gly
    1295   1300   1305

Cys Val Tyr Leu Gln Thr Ser Leu Lys Tyr Asn Ile Leu Pro Glu
    1310   1315   1320

Lys Glu Glu Phe Pro Phe Ala Leu Gly Val Gln Thr Leu Pro Gln
    1325   1330   1335

Thr Cys Asp Glu Pro Lys Ala His Thr Ser Phe Gln Ile Ser Leu
    1340   1345   1350

Ser Val Ser Tyr Thr Gly Ser Arg Ser Ala Ser Asn Met Ala Ile
    1355   1360   1365

Val Asp Val Lys Met Val Ser Gly Phe Ile Pro Leu Lys Pro Thr
    1370   1375   1380

Val Lys Met Leu Glu Arg Ser Asn His Val Ser Arg Thr Glu Val
    1385   1390   1395

Ser Ser Asn His Val Leu Ile Tyr Leu Asp Lys Val Ser Asn Gln
    1400   1405   1410

Thr Leu Ser Leu Phe Phe Thr Val Leu Gln Asp Val Pro Val Arg
    1415   1420   1425

Asp Leu Lys Pro Ala Ile Val Lys Val Tyr Asp Tyr Tyr Glu Thr
    1430   1435   1440

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Asp Glu Phe Ala Ile Ala Glu Tyr
   1445   1450

<210> 25
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<212> PRT
<213> hono sapiens

<400> 25

Glu Glu Leu Pro Asn Tyr Leu Val Thr Leu Pro Ala Arg Leu Asn Phe
1   5   10   15

Pro Ser Val Gln Lys Val Cys Leu Asp Leu Ser Pro Gly Tyr Ser Asp
        20   25   30

Val Lys Phe Thr Val Thr Leu Glu Thr Lys Asp Lys Thr Gln Lys Leu
        35   40   45

Leu Glu Tyr Ser Gly Leu Lys Lys Arg His Leu His Cys Ile Ser Phe
   50   55   60

Leu Val Pro Pro Pro Ala Gly Gly Thr Glu Glu Val Ala Thr Ile Arg
65   70   75   80

Val Ser Gly Val Gly Asn Asn Ile Ser Phe Glu Glu Lys Lys Lys Val
        85   90   95

Leu Ile Gln Arg Gln Gly Asn Gly Thr Phe Val Gln Thr Asp Lys Pro
        100   105   110

Leu Tyr Thr Pro Gly Gln Gln Val Tyr Phe Arg Ile Val Thr Met Asp
        115   120   125

Ser Asn Phe Val Pro Val Asn Asp Lys Tyr Ser Met Val Glu Leu Gln
     130   135   140

Asp Pro Asn Ser Asn Arg Ile Ala Gln Trp Leu Glu Val Val Pro Glu
145   150   155   160

Gln Gly Ile Val Asp Leu Ser Phe Gln Leu Ala Pro Glu Ala Met Leu
        165   170   175

Gly Thr Tyr Thr Val Ala Val Ala Glu Gly Lys Thr Phe Gly Thr Phe
        180   185   190

Ser Val Glu Glu Tyr Val Leu Pro Lys Phe Lys Val Glu Val Val Glu
        195   200   205

Pro Lys Glu Leu Ser Thr Val Gln Glu Ser Phe Leu Val Lys Ile Cys
   210   215   220

Cys Arg Tyr Thr Tyr Gly Lys Pro Met Leu Gly Ala Val Gln Val Ser
225   230   235   240

Val Cys Gln Lys Ala Asn Thr Tyr Trp Tyr Arg Glu Val Glu Arg Glu
        245   250   255

Gln Leu Pro Asp Lys Cys Arg Asn Leu Ser Gly Gln Thr Asp Lys Thr
        260   265   270

Gly Cys Phe Ser Ala Pro Val Asp Met Ala Thr Phe Asp Leu Ile Gly

                    275   280   285

Tyr Ala Tyr Ser His Gln Ile Asn Ile Val Ala Thr Val Val Glu Glu
    290   295   300

Gly Thr Gly Val Glu Ala Asn Ala Thr Gln Asn Ile Tyr Ile Ser Pro
305   310   315   320

Gln Met Gly Ser Met Thr Phe Glu Asp Thr Ser Asn Phe Tyr His Pro
                325   330   335

Asn Phe Pro Phe Ser Gly Lys Ile Arg Val Arg Gly His Asp Asp Ser
            340   345   350

Phe Leu Lys Asn His Leu Val Phe Leu Val Ile Tyr Gly Thr Asn Gly
        355   360   365

Thr Phe Asn Gln Thr Leu Val Thr Asp Asn Asn Gly Leu Ala Pro Phe
    370   375   380

Thr Leu Glu Thr Ser Gly Trp Asn Gly Thr Asp Val Ser Leu Glu Gly
385   390   395   400

Lys Phe Gln Met Glu Asp Leu Val Tyr Asn Pro Glu Gln Val Pro Arg
                405   410   415

Tyr Tyr Gln Asn Ala Tyr Leu His Leu Arg Pro Phe Tyr Ser Thr Thr
                420   425   430

Arg Ser Phe Leu Gly Ile His Arg Leu Asn Gly Pro Leu Lys Cys Gly
            435   440   445

Gln Pro Gln Glu Val Leu Val Asp Tyr Tyr Ile Asp Pro Ala Asp Ala
    450   455   460

Ser Pro Asp Gln Glu Ile Ser Phe Ser Tyr Tyr Leu Ile Gly Lys Gly
465   470   475   480

Ser Leu Val Met Glu Gly Gln Lys His Leu Asn Ser Lys Lys Lys Gly
                485   490   495

Leu Lys Ala Ser Phe Ser Leu Ser Leu Thr Phe Thr Ser Arg Leu Ala
                500   505   510

Pro Asp Pro Ser Leu Val Ile Tyr Ala Ile Phe Pro Ser Gly Gly Val
            515   520   525

Val Ala Asp Lys Ile Gln Phe Ser Val Gly Met Cys Phe Asp Asn Gln
    530   535   540

Val Ser Leu Gly Phe Ser Pro Ser Gln Gln Leu Pro Gly Ala Glu Val
545   550   555   560

Glu Leu Gln Leu Gln Ala Ala Pro Gly Ser Leu Cys Ala Leu Arg Ala
                565   570   575

Val Asp Glu Ser Val Leu Leu Leu Arg Pro Asp Arg Glu Leu Ser Asn
                580   585   590

Arg Ser Val Tyr Gly Met Phe Pro Phe Trp Tyr Gly His Tyr Pro Tyr
            595   600   605

Gln Val Ala Glu Tyr Asp Gln Cys Pro Val Ser Gly Pro Trp Asp Phe
                              Page 33

610   615   620

Pro Gln Pro Leu Ile Asp Pro Met Pro Gln Gly His Ser Ser Gln Arg
625   630   635   640

Ser Ile Ile Trp Arg Pro Ser Phe Ser Glu Gly Thr Asp Leu Phe Ser
                645   650   655

Phe Phe Arg Asp Val Gly Leu Lys Ile Leu Ser Asn Ala Lys Ile Lys
            660   665   670

Lys Pro Val Asp Cys Ser His Arg Ser Pro Glu Tyr Ser Thr Ala Met
        675   680   685

Gly Gly Gly Gly His Pro Glu Ala Phe Glu Ser Ser Thr Pro Leu His
    690   695   700

Gln Ala Glu Asp Ser Gln Val Arg Gln Tyr Phe Pro Glu Thr Trp Leu
705   710   715   720

Trp Asp Leu Phe Pro Ile Gly Asn Ser Gly Lys Glu Ala Val His Val
            725   730   735

Thr Val Pro Asp Ala Ile Thr Glu Trp Lys Ala Met Ser Phe Cys Thr
            740   745   750

Ser Gln Ser Arg Gly Phe Gly Leu Ser Pro Thr Val Gly Leu Thr Ala
        755   760   765

Phe Lys Pro Phe Phe Val Asp Leu Thr Leu Pro Tyr Ser Val Val Arg
    770   775   780

Gly Glu Ser Phe Arg Leu Thr Ala Thr Ile Phe Asn Tyr Leu Lys Asp
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Glu Ser Trp Ala Asp Ser Gln Thr Ser Ser Cys Leu Cys Ala Asp Asp
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Ala Lys Thr His His Trp Asn Ile Thr Ala Val Lys Leu Gly His Ile
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Asn Phe Thr Ile Ser Thr Lys Ile Leu Asp Ser Asn Glu Pro Cys Gly
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Lys Pro Val Leu Val Lys Pro Glu Gly Val Leu Val Glu Lys Thr His
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Ser Ser Leu Leu Cys Pro Lys Gly Lys Val Ala Ser Glu Ser Val Ser
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Thr Val Leu Gly Lys Gln Leu Glu Ile Leu Asp Ser Glu Arg Lys Arg
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Arg Met Glu Ala Ala Lys Val Trp Arg Asp Ile Met Gly Thr Ala Leu
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Trp Leu  Thr Ala Phe Val Thr  Lys Cys Phe Gly Gln  Ala Gln Lys
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Phe Ile  Phe Ile Asp Pro Lys  Asn Ile Gln Asp Ala  Leu Lys Trp
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Met Ala  Gly Asn Gln Leu Pro  Ser Gly Cys Tyr Ala  Asn Val Gly
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Asp Val  Asp Asp Pro Met Val  Ser Gln Gly Leu Arg  Cys Leu Lys
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Ala Lys  Ala Thr Ser Ile Val  Ala Trp Leu Ala Lys  Gln His Asn
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Gln Ala  Leu Ala Lys Tyr Ala  Thr Thr Ala Tyr Met  Pro Ser Glu
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Glu Ile  Asn Leu Val Val Lys  Ser Thr Glu Asn Phe  Gln Arg Thr
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Pro Thr  Asn Met Lys Thr Phe  Ser Leu Ser Val Glu  Ile Gly Lys
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Ile His  Thr Ser Tyr Val Gly  Ser Arg Ser Ser Ser  Asn Met Ala
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Thr Asn  Gln Leu Leu Leu Gln  Gln Pro Leu Val Lys  Lys Val Glu
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Phe Gly  Thr Asp Thr Leu Asn  Ile Tyr Leu Asp Glu  Leu Ile Lys
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Asn Thr  Gln Thr Tyr Thr Phe  Thr Ile Ser Gln Ser  Val Leu Val
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Thr Asn  Leu Lys Pro Ala Thr  Ile Lys Val Tyr Asp  Tyr Tyr Leu
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Pro Gly  Ser Phe Lys Leu Ser  Gln Tyr Thr Ile Val  Trp Ser Met
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Val Ser Pro Thr Lys Met Trp Ala Gln Leu Leu Leu Gly Met Leu Ala
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cta tca cca gcc att gca gaa gaa ctt cca aac tac ctg gtg aca tta        209
Leu Ser Pro Ala Ile Ala Glu Glu Leu Pro Asn Tyr Leu Val Thr Leu
25              30              35              40

cca gcc cgg cta aat ttc ccc tcc gtt cag aag gtt tgt ttg gac ctg        257
Pro Ala Arg Leu Asn Phe Pro Ser Val Gln Lys Val Cys Leu Asp Leu
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Ser Pro Gly Tyr Ser Asp Val Lys Phe Thr Val Thr Leu Glu Thr Lys
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gac aag acc cag aag ttg cta gaa tac tct gga ctg aag aag agg cac        353
Asp Lys Thr Gln Lys Leu Leu Glu Tyr Ser Gly Leu Lys Lys Arg His
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tta cat tgt atc tcc ttt ctt gta cca cct cct gct ggt ggc aca gaa        401
Leu His Cys Ile Ser Phe Leu Val Pro Pro Pro Ala Gly Gly Thr Glu
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Glu Val Ala Thr Ile Arg Val Ser Gly Val Gly Asn Asn Ile Ser Phe
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Glu Glu Lys Lys Lys Val Leu Ile Gln Arg Gln Gly Asn Gly Thr Phe
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Arg Ile Val Thr Met Asp Ser Asn Phe Val Pro Val Asn Asp Lys Tyr
        155             160             165

tcc atg gtg gaa cta cag gat cca aat agc aac agg att gca cag tgg        641
Ser Met Val Glu Leu Gln Asp Pro Asn Ser Asn Arg Ile Ala Gln Trp
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Leu Glu Val Val Pro Glu Gln Gly Ile Val Asp Leu Ser Phe Gln Leu
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Lys Thr Phe Gly Thr Phe Ser Val Glu Glu Tyr Val Leu Pro Lys Phe
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Thr Phe Asp Leu Ile Gly Tyr Ala Tyr Ser His Gln Ile Asn Ile Val
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Arg Gly His Asp Asp Ser Phe Leu Lys Asn His Leu Val Phe Leu Val
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Asn Gly Leu Ala Pro Phe Thr Leu Glu Thr Ser Gly Trp Asn Gly Thr
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gac gtt tct ctg gag gga aag ttt caa atg gaa gac tta gta tat aat       1409
Asp Val Ser Leu Glu Gly Lys Phe Gln Met Glu Asp Leu Val Tyr Asn
425                     430                     435                 440

ccg gaa caa gtg cca cgt tac tac caa aat gcc tac ctg cac ctg cga       1457
Pro Glu Gln Val Pro Arg Tyr Tyr Gln Asn Ala Tyr Leu His Leu Arg
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ccc ttc tac agc aca acc cgc agc ttc ctt ggc atc cac cgg cta aac       1505
Pro Phe Tyr Ser Thr Thr Arg Ser Phe Leu Gly Ile His Arg Leu Asn
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ggc ccc ttg aaa tgt ggc cag ccc cag gaa gtg ctg gtg gat tat tac       1553
Gly Pro Leu Lys Cys Gly Gln Pro Gln Glu Val Leu Val Asp Tyr Tyr
            475                     480                     485

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Tyr Leu Ile Gly Lys Gly Ser Leu Val Met Glu Gly Gln Lys His Leu
505             510             515             520

aac tct aag aag aaa gga ctg aaa gcc tcc ttc tct ctc tca ctg acc        1697
Asn Ser Lys Lys Lys Gly Leu Lys Ala Ser Phe Ser Leu Ser Leu Thr
                525             530             535

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Phe Thr Ser Arg Leu Ala Pro Asp Pro Ser Leu Val Ile Tyr Ala Ile
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Phe Pro Ser Gly Gly Val Val Ala Asp Lys Ile Gln Phe Ser Val Glu
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Leu Pro Gly Ala Glu Val Glu Leu Gln Leu Gln Ala Ala Pro Gly Ser
585             590             595             600

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Leu Cys Ala Leu Arg Ala Val Asp Glu Ser Val Leu Leu Leu Arg Pro
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Tyr Gly His Tyr Pro Tyr Gln Val Ala Glu Tyr Asp Gln Cys Pro Val
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745             750             755             760

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Gly Lys Glu Ala Val His Val Thr Val Pro Asp Ala Ile Thr Glu Trp
                765             770             775

aag gcg atg agt ttc tgc act tcc cag tca aga ggc ttc ggg ctt tca      2465
Lys Ala Met Ser Phe Cys Thr Ser Gln Ser Arg Gly Phe Gly Leu Ser
            780             785             790

ccc act gtt gga cta act gct ttc aag cca ttc ttt gtt gac ctg act      2513
Pro Thr Val Gly Leu Thr Ala Phe Lys Pro Phe Phe Val Asp Leu Thr
            795             800             805

ctc cct tac tca gta gtc cgt ggg gaa tcc ttt cgt ctt act gcc acc      2561
Leu Pro Tyr Ser Val Val Arg Gly Glu Ser Phe Arg Leu Thr Ala Thr
        810             815             820

atc ttc aat tac cta aag gat tgc atc agg gtg aga gct ggg gat aca      2609
Ile Phe Asn Tyr Leu Lys Asp Cys Ile Arg Val Arg Ala Gly Asp Thr
825             830             835             840

gga atc agg tgt cag ccc tgg aat cac acc tcc ccc ata act ttg tct      2657
Gly Ile Arg Cys Gln Pro Trp Asn His Thr Ser Pro Ile Thr Leu Ser
                845             850             855

cta aat tgg aag cat ccc aat ttt ccc tgg gaa aga gag gag atg tcg      2705
Leu Asn Trp Lys His Pro Asn Phe Pro Trp Glu Arg Glu Glu Met Ser
            860             865             870

gcg tct cag ccc cca ggt ttc ccc agg cct cta tgc act acc tcc ttt      2753
Ala Ser Gln Pro Pro Gly Phe Pro Arg Pro Leu Cys Thr Thr Ser Phe
        875             880             885

gtt tgt acc ctt tgt ctc tta aac atc ctc cgt agg ttc aga ctg acc      2801
Val Cys Thr Leu Cys Leu Leu Asn Ile Leu Arg Arg Phe Arg Leu Thr
    890             895             900

tgg cta aat cgc atg agt acc agc tag aatcatgggc agattctcag           2848
Trp Leu Asn Arg Met Ser Thr Ser
905             910
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acctccagtt gtctctgtgc tgatgaagca aaaacccacc actggaacat cacagctgtc    2908

aaattgggta agagagggaa gtggtagacg ggcgaggaaa gccagcagca gaagaccagt    2968

gactgagcac tcagtctttt cctctgccac atctgctttg cttcctcctc catttttccac   3028

tattttctc cctcctaagg ctgttataag tcaatacaca aacactcttt gataggtgac      3088

caaacaaatt tgttcaaacc ggaatatttt gagtgtgaaa gggagagctt ttaatatta     3148

tagctggaca aggaatacat ggtcatgtaa ctaatcaagg acttactata agagtccctg     3208

ggccaggcac tattctaact gctttacata tattaactca ttaaattgat tgactaatta    3268

atttttattt tatttattta ttttgagag gagaatcgct tgaacctggg aggtggaggt     3328

tgcagtgggc tgagatcacg ccattgcact ccagcctggg cgacagagtg agactctgtc    3388

tcaaaaaaaa aaaaaaa                                                     3405
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<212> PRT
<213> homosapiens

<400> 29

Met Ile Val Tyr Lys Phe Val Pro Val Ser Pro Thr Lys Met Trp Ala
1   5   10   15

Gln Leu Leu Leu Gly Met Leu Ala Leu Ser Pro Ala Ile Ala Glu Glu
            20   25   30

Leu Pro Asn Tyr Leu Val Thr Leu Pro Ala Arg Leu Asn Phe Pro Ser
            35   40   45

Val Gln Lys Val Cys Leu Asp Leu Ser Pro Gly Tyr Ser Asp Val Lys
        50   55   60

Phe Thr Val Thr Leu Glu Thr Lys Asp Lys Thr Gln Lys Leu Leu Glu
65   70   75   80

Tyr Ser Gly Leu Lys Lys Arg His Leu His Cys Ile Ser Phe Leu Val
                85   90   95

Pro Pro Pro Ala Gly Gly Thr Glu Glu Val Ala Thr Ile Arg Val Ser
            100   105   110

Gly Val Gly Asn Asn Ile Ser Phe Glu Glu Lys Lys Lys Val Leu Ile
            115   120   125

Gln Arg Gln Gly Asn Gly Thr Phe Val Gln Thr Asp Lys Pro Leu Tyr
        130   135   140

Thr Pro Gly Gln Gln Val Tyr Phe Arg Ile Val Thr Met Asp Ser Asn
145   150   155   160

Phe Val Pro Val Asn Asp Lys Tyr Ser Met Val Glu Leu Gln Asp Pro
                165   170   175

Asn Ser Asn Arg Ile Ala Gln Trp Leu Glu Val Val Pro Glu Gln Gly
            180   185   190

Ile Val Asp Leu Ser Phe Gln Leu Ala Pro Glu Ala Met Leu Gly Thr
            195   200   205

Tyr Thr Val Ala Val Ala Glu Gly Lys Thr Phe Gly Thr Phe Ser Val
    210   215   220

Glu Glu Tyr Val Leu Pro Lys Phe Lys Val Glu Val Val Glu Pro Lys
225   230   235   240

Glu Leu Ser Thr Val Gln Glu Ser Phe Leu Val Lys Ile Cys Cys Arg
                245   250   255

Tyr Thr Tyr Gly Lys Pro Met Leu Gly Ala Val Gln Val Ser Val Cys
            260   265   270

Gln Lys Ala Asn Thr Tyr Trp Tyr Arg Glu Val Glu Arg Glu Gln Leu
        275   280   285

Pro Asp Lys Cys Arg Asn Leu Ser Gly Gln Thr Asp Lys Thr Gly Cys
    290   295   300

Phe Ser Ala Pro Val Asp Met Ala Thr Phe Asp Leu Ile Gly Tyr Ala
305   310   315   320

Tyr Ser His Gln Ile Asn Ile Val Ala Thr Val Val Glu Glu Gly Thr
            325   330   335

Gly Val Glu Ala Asn Ala Thr Gln Asn Ile Tyr Ile Ser Pro Gln Met
            340   345   350

Gly Ser Met Thr Phe Glu Asp Thr Ser Asn Phe Tyr His Pro Asn Phe
        355   360   365

Pro Phe Ser Gly Lys Ile Arg Val Arg Gly His Asp Asp Ser Phe Leu
    370   375   380

Lys Asn His Leu Val Phe Leu Val Ile Tyr Gly Thr Asn Gly Thr Phe
385   390   395   400

Asn Gln Thr Leu Val Thr Asp Asn Asn Gly Leu Ala Pro Phe Thr Leu
            405   410   415

Glu Thr Ser Gly Trp Asn Gly Thr Asp Val Ser Leu Glu Gly Lys Phe
            420   425   430

Gln Met Glu Asp Leu Val Tyr Asn Pro Glu Gln Val Pro Arg Tyr Tyr
        435   440   445

Gln Asn Ala Tyr Leu His Leu Arg Pro Phe Tyr Ser Thr Thr Arg Ser
    450   455   460

Phe Leu Gly Ile His Arg Leu Asn Gly Pro Leu Lys Cys Gly Gln Pro

465   470   475   480

Gln Glu Val Leu Val Asp Tyr Tyr Ile Asp Pro Ala Asp Ala Ser Pro
            485   490   495

Asp Gln Glu Ile Ser Phe Ser Tyr Tyr Leu Ile Gly Lys Gly Ser Leu
            500   505   510

Val Met Glu Gly Gln Lys His Leu Asn Ser Lys Lys Lys Gly Leu Lys
            515   520   525

Ala Ser Phe Ser Leu Ser Leu Thr Phe Thr Ser Arg Leu Ala Pro Asp
    530   535   540

Pro Ser Leu Val Ile Tyr Ala Ile Phe Pro Ser Gly Gly Val Val Ala
545   550   555   560

Asp Lys Ile Gln Phe Ser Val Glu Met Cys Phe Asp Asn Gln Val Ser
            565   570   575

Leu Gly Phe Ser Pro Ser Gln Gln Leu Pro Gly Ala Glu Val Glu Leu
            580   585   590

Gln Leu Gln Ala Ala Pro Gly Ser Leu Cys Ala Leu Arg Ala Val Asp
    595   600   605

Glu Ser Val Leu Leu Leu Arg Pro Asp Arg Glu Leu Ser Asn Arg Ser
    610   615   620

Val Tyr Gly Met Phe Pro Phe Trp Tyr Gly His Tyr Pro Tyr Gln Val
625   630   635   640

Ala Glu Tyr Asp Gln Cys Pro Val Ser Gly Pro Trp Asp Phe Pro Gln
            645   650   655

Pro Leu Ile Asp Pro Met Pro Gln Gly His Ser Ser Gln Arg Ser Ile
            660   665   670

Ile Trp Arg Pro Ser Phe Ser Glu Gly Thr Asp Leu Phe Ser Phe Phe
        675   680   685

Arg Asp Val Gly Leu Lys Ile Leu Ser Asn Ala Lys Ile Lys Lys Pro
    690   695   700

Val Asp Cys Ser His Arg Ser Pro Glu Tyr Ser Thr Ala Met Gly Ala
705   710   715   720

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Gly Gly Gly His Pro Glu Ala Phe Glu Ser Ser Thr Pro Leu His Gln
          725   730   735

Ala Glu Asp Ser Gln Val Arg Gln Tyr Phe Pro Glu Thr Trp Leu Trp
        740   745   750

Asp Leu Phe Pro Ile Gly Asn Ser Gly Lys Glu Ala Val His Val Thr
        755   760   765

Val Pro Asp Ala Ile Thr Glu Trp Lys Ala Met Ser Phe Cys Thr Ser
    770   775   780

Gln Ser Arg Gly Phe Gly Leu Ser Pro Thr Val Gly Leu Thr Ala Phe
785   790   795   800

Lys Pro Phe Phe Val Asp Leu Thr Leu Pro Tyr Ser Val Val Arg Gly
        805   810   815

Glu Ser Phe Arg Leu Thr Ala Thr Ile Phe Asn Tyr Leu Lys Asp Cys
        820   825   830

Ile Arg Val Arg Ala Gly Asp Thr Gly Ile Arg Cys Gln Pro Trp Asn
        835   840   845

His Thr Ser Pro Ile Thr Leu Ser Leu Asn Trp Lys His Pro Asn Phe
    850   855   860

Pro Trp Glu Arg Glu Glu Met Ser Ala Ser Gln Pro Pro Gly Phe Pro
865   870   875   880

Arg Pro Leu Cys Thr Thr Ser Phe Val Cys Thr Leu Cys Leu Leu Asn
        885   890   895

Ile Leu Arg Arg Phe Arg Leu Thr Trp Leu Asn Arg Met Ser Thr Ser
        900   905   910

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ccagcccggc taaatttccc ctccgttcag aaggtttgtt tggacctgag ccctgggtac   180

agtgatgtta aattcacggt tactctggag accaaggaca agacccagaa gttgctagaa   240

tactctggac tgaagaagag gcacttacat tgtatctcct ttcttgtacc acctcctgct   300

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ggtggcacag aagaagtggc cacaatccgg gtgtcgggag ttggaaataa catcagcttt    360

gaggagaaga aaaaggttct aattcagagg caggggaacg gcacctttgt acagactgac    420

aaacctctct acaccccagg gcagcaagtg tatttccgca ttgtcaccat ggatagcaac    480

ttcgttccag tgaatgacaa gtactccatg gtggaactac aggatccaaa tagcaacagg    540

attgcacagt ggctggaagt ggtacctgag caaggcattg tagacctgtc cttccaactg    600

gcaccagagg caatgctggg cacctacact gtggcagtgg ctgagggcaa gacctttggt    660

actttcagtg tggaggaata tgtgctgccg aagtttaagg tggaagtggt ggaacccaag    720

gagttatcaa cggtgcagga atctttctta gtaaaaattt gttgtaggta cacctatgga    780

aagcccatgc taggggcagt gcaggtatct gtgtgtcaga aggcaaatac ttactggtat    840

cgagaggtgg aacgggaaca gcttcctgac aaatgcagga acctctctgg acagactgac    900

aaaacaggat gtttctcagc acctgtggac atggccacct ttgacctcat tggatatgcg    960

tacagccatc aaatcaatat tgtggctact gttgtggagg aagggacagg tgtggaggcc   1020

aatgccactc agaatatcta catttctcca caaatgggat caatgacctt tgaagacacc   1080

agcaattttt accatccaaa tttccccttc agtgggaaga taagagttag gggccatgat   1140

gactccttcc tcaagaacca tctagtgttt ctggtgattt atggcacaaa tggaaccttc   1200

aaccagaccc tggttactga taacaatggc ctagctccct ttaccttgga gacatccggt   1260

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ccggaacaag tgccacgtta ctaccaaaat gcctacctgc acctgcgacc cttctacagc   1380

acaacccgca gcttccttgg catccaccgg ctaaacggcc ccttgaaatg tggccagccc   1440

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agcaaccgct ctgtctatgg gatgtttcca ttctggtatg gtcactaccc ctatcaagtg   1920

gctgagtatg atcagtgtcc agtgtctggc ccatgggact tcctcagcc cctcattgac   1980

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ggcacggacc ttttcagctt tttccgggac gtgggcctga aaatactgtc caatgccaaa   2100

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caggtccgcc agtacttccc agagacctgg ctctgggatc tgtttcctat tggtaactcg    2280

gggaaggagg cggtccacgt cacagttcct gacgccatca ccgagtggaa ggcgatgagt    2340

ttctgcactt cccagtcaag aggcttcggg cttтcaccca ctgttggact aactgctttc    2400

aagccattct ttgttgacct gactctccct tactcagtag tccgtgggga atcctttcgt    2460

cttactgcca ccatcttcaa ttacctaaag gattgcatca gggtgagagc tggggataca    2520

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catcccaatt ttccctggga aagagaggag atgtcggcgt ctcagccccc aggtttcccc    2640

aggcctctat gcactacctc ctttgtttgt acctttgtc tcttaaacat cctccgtagg     2700

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Arg Gly Glu Ser Phe Arg Leu Thr Ala Thr Ile Phe Asn Tyr
            20                  25                  30


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<213>    homo sapiens

<400>    32

Thr Phe Val Gln Thr Asp Lys Pro Leu Tyr Thr Pro Gly Gln Gln Val
1               5                   10                  15
Tyr Phe Arg Ile Val Thr Met Asp Ser Asn Phe Val Pro
            20                  25


<210>    33
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<213>    homo sapiens

<400>    33

Phe Val Asp Leu Thr Leu Pro Tyr Ser Val Val Arg Gly Glu Ser Phe
1               5                   10                  15
Arg Leu Thr Ala Thr Ile Phe Asn Tyr Leu Lys
            20                  25


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<213> homo sapiens

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Val Pro Asp Ala Ile Thr Glu Trp Lys Ala Met Ser Phe Cys Thr Ser
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Gln Ser Arg Gly Phe
            20

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<213> homo sapiens

<400> 35

Phe Ser Val Glu Glu Tyr Val Leu Pro Lys Phe Lys Val
1   5   10

<210> 36
<211> 10
<212> PRT
<213> homo sapiens

<400> 36

Arg Gln Tyr Phe Pro Glu Thr Trp Leu Trp
1   5   10

<210> 37
<211> 17
<212> PRT
<213> homo sapiens

<400> 37

Phe Leu Val Lys Ile Cys Cys Arg Tyr Thr Tyr Gly Lys Pro Met Leu
1   5   10   15

Gly

<210> 38
<211> 30
<212> PRT
<213> homo sapiens

<400> 38

Met Ile Val Tyr Lys Phe Val Pro Val Ser Pro Thr Lys Met Trp Ala
1   5   10   15

Gln Leu Leu Leu Gly Met Leu Ala Leu Ser Pro Ala Ile Ala
            20   25   30

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<213> homo sapiens

<400> 39

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Glu Glu Leu Pro Asn Tyr Leu Val Thr Leu Pro Ala Arg Leu Asn Phe
1               5               10                      15

Pro Ser Val Gln Lys Val Cys Leu Asp Leu Ser Pro Gly Tyr Ser Asp
            20              25                      30

Val Lys Phe Thr Val Thr Leu Glu Thr Lys Asp Lys Thr Gln Lys Leu
        35              40                      45

Leu Glu Tyr Ser Gly Leu Lys Lys Arg His Leu His Cys Ile Ser Phe
    50              55                      60

Leu Val Pro Pro Pro Ala Gly Gly Thr Glu Glu Val Ala Thr Ile Arg
65                  70              75                      80

Val Ser Gly Val Gly Asn Asn Ile Ser Phe Glu Glu Lys Lys Lys Val
                85              90                      95

Leu Ile Gln Arg Gln Gly Asn Gly Thr Phe Val Gln Thr Asp Lys Pro
            100             105             110

Leu Tyr Thr Pro Gly Gln Gln Val Tyr Phe Arg Ile Val Thr Met Asp
        115             120             125

Ser Asn Phe Val Pro Val Asn Asp Lys Tyr Ser Met Val Glu Leu Gln
    130             135             140

Asp Pro Asn Ser Asn Arg Ile Ala Gln Trp Leu Glu Val Val Pro Glu
145             150             155                     160

Gln Gly Ile Val Asp Leu Ser Phe Gln Leu Ala Pro Glu Ala Met Leu
            165             170             175

Gly Thr Tyr Thr Val Ala Val Ala Glu Gly Lys Thr Phe Gly Thr Phe
        180             185             190

Ser Val Glu Glu Tyr Val Leu Pro Lys Phe Lys Val Glu Val Val Glu
    195             200             205

Pro Lys Glu Leu Ser Thr Val Gln Glu Ser Phe Leu Val Lys Ile Cys
    210             215             220

Cys Arg Tyr Thr Tyr Gly Lys Pro Met Leu Gly Ala Val Gln Val Ser
225             230             235                     240

Val Cys Gln Lys Ala Asn Thr Tyr Trp Tyr Arg Glu Val Glu Arg Glu
            245             250             255

Gln Leu Pro Asp Lys Cys Arg Asn Leu Ser Gly Gln Thr Asp Lys Thr
            260             265             270

Gly Cys Phe Ser Ala Pro Val Asp Met Ala Thr Phe Asp Leu Ile Gly
        275             280             285

Tyr Ala Tyr Ser His Gln Ile Asn Ile Val Ala Thr Val Val Glu Glu
    290             295             300

Gly Thr Gly Val Glu Ala Asn Ala Thr Gln Asn Ile Tyr Ile Ser Pro
305             310             315                     320

Gln Met Gly Ser Met Thr Phe Glu Asp Thr Ser Asn Phe Tyr His Pro
            325             330             335
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Asn Phe Pro Phe Ser Gly Lys Ile Arg Val Arg Gly His Asp Asp Ser
       340   345   350

Phe Leu Lys Asn His Leu Val Phe Leu Val Ile Tyr Gly Thr Asn Gly
       355   360   365

Thr Phe Asn Gln Thr Leu Val Thr Asp Asn Asn Gly Leu Ala Pro Phe
       370   375   380

Thr Leu Glu Thr Ser Gly Trp Asn Gly Thr Asp Val Ser Leu Glu Gly
385   390   395   400

Lys Phe Gln Met Glu Asp Leu Val Tyr Asn Pro Glu Gln Val Pro Arg
            405   410   415

Tyr Tyr Gln Asn Ala Tyr Leu His Leu Arg Pro Phe Tyr Ser Thr Thr
       420   425   430

Arg Ser Phe Leu Gly Ile His Arg Leu Asn Gly Pro Leu Lys Cys Gly
       435   440   445

Gln Pro Gln Glu Val Leu Val Asp Tyr Tyr Ile Asp Pro Ala Asp Ala
       450   455   460

Ser Pro Asp Gln Glu Ile Ser Phe Ser Tyr Tyr Leu Ile Gly Lys Gly
465   470   475   480

Ser Leu Val Met Glu Gly Gln Lys His Leu Asn Ser Lys Lys Lys Gly
            485   490   495

Leu Lys Ala Ser Phe Ser Leu Ser Leu Thr Phe Thr Ser Arg Leu Ala
            500   505   510

Pro Asp Pro Ser Leu Val Ile Tyr Ala Ile Phe Pro Ser Gly Gly Val
       515   520   525

Val Ala Asp Lys Ile Gln Phe Ser Val Glu Met Cys Phe Asp Asn Gln
       530   535   540

Val Ser Leu Gly Phe Ser Pro Ser Gln Gln Leu Pro Gly Ala Glu Val
545   550   555   560

Glu Leu Gln Leu Gln Ala Ala Pro Gly Ser Leu Cys Ala Leu Arg Ala
            565   570   575

Val Asp Glu Ser Val Leu Leu Leu Arg Pro Asp Arg Glu Leu Ser Asn
            580   585   590

Arg Ser Val Tyr Gly Met Phe Pro Phe Trp Tyr Gly His Tyr Pro Tyr
       595   600   605

Gln Val Ala Glu Tyr Asp Gln Cys Pro Val Ser Gly Pro Trp Asp Phe
       610   615   620

Pro Gln Pro Leu Ile Asp Pro Met Pro Gln Gly His Ser Ser Gln Arg
625   630   635   640

Ser Ile Ile Trp Arg Pro Ser Phe Ser Glu Gly Thr Asp Leu Phe Ser
            645   650   655

Phe Phe Arg Asp Val Gly Leu Lys Ile Leu Ser Asn Ala Lys Ile Lys
       660   665   670

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Lys Pro Val Asp Cys Ser His Arg Ser Pro Glu Tyr Ser Thr Ala Met
    675             680             685
Gly Ala Gly Gly Gly His Pro Glu Ala Phe Glu Ser Ser Thr Pro Leu
    690             695             700
His Gln Ala Glu Asp Ser Gln Val Arg Gln Tyr Phe Pro Glu Thr Trp
705             710             715             720
Leu Trp Asp Leu Phe Pro Ile Gly Asn Ser Gly Lys Glu Ala Val His
            725             730             735
Val Thr Val Pro Asp Ala Ile Thr Glu Trp Lys Ala Met Ser Phe Cys
        740             745             750
Thr Ser Gln Ser Arg Gly Phe Gly Leu Ser Pro Thr Val Gly Leu Thr
    755             760             765
Ala Phe Lys Pro Phe Phe Val Asp Leu Thr Leu Pro Tyr Ser Val Val
    770             775             780
Arg Gly Glu Ser Phe Arg Leu Thr Ala Thr Ile Phe Asn Tyr Leu Lys
785             790             795             800
Asp Cys Ile Arg Val Arg Ala Gly Asp Thr Gly Ile Arg Cys Gln Pro
            805             810             815
Trp Asn His Thr Ser Pro Ile Thr Leu Ser Leu Asn Trp Lys His Pro
            820             825             830
Asn Phe Pro Trp Glu Arg Glu Glu Met Ser Ala Ser Gln Pro Pro Gly
            835             840             845
Phe Pro Arg Pro Leu Cys Thr Thr Ser Phe Val Cys Thr Leu Cys Leu
    850             855             860
Leu Asn Ile Leu Arg Arg Phe Arg Leu Thr Trp Leu Asn Arg Met Ser
865             870             875             880
Thr Ser
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<213>   homo sapiens

<400>   40
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Ser Lys Thr Thr Phe Gly Phe Pro Gly Tyr Gln Lys Glu Leu Met Tyr
1               5               10              15
Lys His Ser Asn Gly Ser Tyr Ser Ala Phe Gly Glu Arg Asp Gly Asn
            20              25              30
Gly Asn Thr Trp
            35
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Ile Leu Ser Phe Phe Cys Leu Thr Val Arg Lys Met Trp Leu Lys Phe
1   5   10   15

Ile Leu Ala Ile Leu Leu Leu His Ala Ala Ala Gly Lys Glu Pro Glu
                20   25   30

Pro Gln Tyr Val Leu Met Val Pro Ala Val Leu Gln Ser Asp Ser Pro
            35   40   45

Ser Gln Val Cys Leu Gln Phe Phe Asn Leu Asn Gln Thr Ile Ser Val
        50   55   60

Arg Val Val Leu Glu Tyr Asp Thr Ile Asn Thr Thr Ile Phe Glu Lys
65   70   75   80

Asn Thr Thr Thr Ser Asn Gly Leu Gln Cys Leu Asn Phe Met Ile Pro
                85   90   95

Pro Val Thr Ser Val Ser Leu Ala Phe Ile Ser Phe Thr Ala Lys Gly
            100   105   110

Thr Thr Phe Asp Leu Lys Glu Arg Arg Ser Val Met Ile Trp Asn Met
            115   120   125

Glu Ser Phe Val Phe Val Gln Thr Asp Lys Pro Ile Tyr Lys Pro Gly
            130   135   140

Gln Ser Val Met Phe Arg Val Val Ala Leu Asp Phe Asn Phe Lys Pro
145   150   155   160

Val Gln Glu Met Tyr Pro Leu Ile Ala Val Gln Asp Pro Gln Asn Asn
                165   170   175

Arg Ile Phe Gln Trp Gln Asn Val Thr Ser Glu Ile Asn Ile Val Gln
            180   185   190

Ile Glu Phe Pro Leu Thr Glu Glu Pro Ile Leu Gly Asn Tyr Lys Ile
            195   200   205

Ile Val Thr Lys Lys Ser Gly Glu Arg Thr Ser His Ser Phe Leu Val
    210   215   220

Glu Glu Tyr Val Leu Pro Lys Phe Asp Val Thr Val Thr Ala Pro Gly
225   230   235   240

Ser Leu Thr Val Met Asp Ser Glu Leu Thr Val Lys Ile Cys Ala Val
                245   250   255

Tyr Thr Tyr Gly Gln Pro Val Glu Gly Lys Val Gln Leu Ser Val Cys
            260   265   270

Arg Asp Phe Asp Ser Tyr Gly Arg Cys Lys Lys Ser Pro Val Cys Gln
            275   280   285

Ser Phe Thr Lys Asp Leu Asp Thr Asp Gly Cys Leu Ser His Ile Leu
    290   295   300

Ser Ser Lys Val Phe Glu Leu Asn Arg Ile Gly Tyr Lys Arg Asn Leu
305   310   315   320

Asp Val Lys Ala Ile Val Thr Glu Lys Glu Gln Val Cys Asn Leu Thr

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                         325   330   335

Ala Thr Gln Ser Ile Ser Ile Thr Gln Val Met Ser Ser Leu Gln Phe
            340   345   350

Glu Asn Val Asp His His Tyr Arg Arg Gly Ile Pro Tyr Phe Gly Gln
        355   360   365

Ile Lys Leu Val Asp Lys Asp Asn Ser Pro Ile Ser Asn Lys Val Ile
    370   375   380

Gln Leu Phe Val Asn Asn Lys Asn Thr His Asn Phe Thr Thr Asp Ile
385   390   395   400

Asn Gly Ile Ala Pro Phe Ser Ile Asp Thr Ser Lys Ile Phe Asp Pro
            405   410   415

Glu Leu Ser Leu Lys Ala Leu Tyr Lys Thr Ser Asp Gln Cys His Ser
            420   425   430

Glu Gly Trp Ile Glu Pro Ser Tyr Pro Asp Ala Ser Leu Ser Val Gln
            435   440   445

Arg Leu Tyr Ser Trp Thr Ser Ser Phe Val Arg Ile Glu Pro Leu Trp
    450   455   460

Lys Asp Met Ser Cys Gly Gln Lys Arg Met Ile Thr Val Tyr Tyr Ile
465   470   475   480

Leu Asn Thr Glu Gly Tyr Glu His Ile Asn Ile Val Asn Phe Tyr Tyr
            485   490   495

Val Gly Met Ala Lys Gly Lys Ile Val Leu Thr Gly Glu Ile Lys Val
            500   505   510

Asn Ile Gln Ala Asp Gln Asn Gly Thr Phe Met Ile Pro Leu Val Val
            515   520   525

Asn Glu Lys Met Ala Pro Ala Leu Arg Leu Leu Val Tyr Met Leu His
    530   535   540

Pro Ala Lys Glu Leu Val Ala Asp Ser Val Arg Phe Ser Ile Glu Lys
545   550   555   560

Cys Phe Lys Asn Lys Val Gln Leu Gln Phe Ser Glu Lys Gln Met Leu
            565   570   575

Thr Thr Ser Asn Val Ser Leu Val Ile Glu Ala Ala Ala Asn Ser Phe
            580   585   590

Cys Ala Val Arg Ala Val Asp Lys Ser Met Leu Leu Leu Lys Ser Glu
            595   600   605

Thr Glu Leu Ser Ala Glu Thr Ile Tyr Asn Leu His Pro Ile Gln Asp
    610   615   620

Leu Gln Gly Tyr Ile Phe Asn Gly Leu Asn Leu Glu Asp Asp Pro Gln
625   630   635   640

Asp Pro Cys Val Ser Ser Asp Asp Ile Phe His Lys Gly Leu Tyr Tyr
            645   650   655

Arg Pro Leu Thr Ser Gly Leu Gly Pro Asp Val Tyr Gln Phe Leu Arg
                              Page 55

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              660                          665              HYS-31CIP        670

Asp Met Gly Met Lys Phe Phe Thr Asn Ser Lys Ile Arg Gln Pro Thr
        675                 680                 685

Val Cys Thr Arg Glu Thr Val Arg Pro Pro Ser Tyr Phe Leu Asn Ala
        690                 695                 700

Gly Phe Thr Ala Ser Thr His His Val Lys Leu Ser Ala Glu Val Ala
705                 710                 715                 720

Arg Glu Glu Arg Gly Lys Arg His Ile Leu Glu Thr Ile Arg Glu Phe
                725                 730                 735

Phe Pro Glu Thr Trp Ile Trp Asp Ile Ile Leu Ile Asn Ser Thr Gly
                740                 745                 750

Lys Ala Ser Val Ser Tyr Thr Ile Pro Asp Thr Ile Thr Glu Trp Lys
            755                 760                 765

Ala Ser Ala Phe Cys Val Glu Glu Leu Ala Gly Phe Gly Met Ser Val
        770                 775                 780

Pro Ala Thr Leu Thr Ala Phe Gln Pro Phe Phe Val Asp Leu Thr Leu
785                 790                 795                 800

Pro Tyr Ser Ile Ile His Gly Glu Asp Phe Leu Val Arg Ala Asn Val
                805                 810                 815

Phe Asn Tyr Leu Asn His Cys Ile Lys Ile
            820                 825
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